

Advanced Wind Technology

Elevated Opportunities for the South

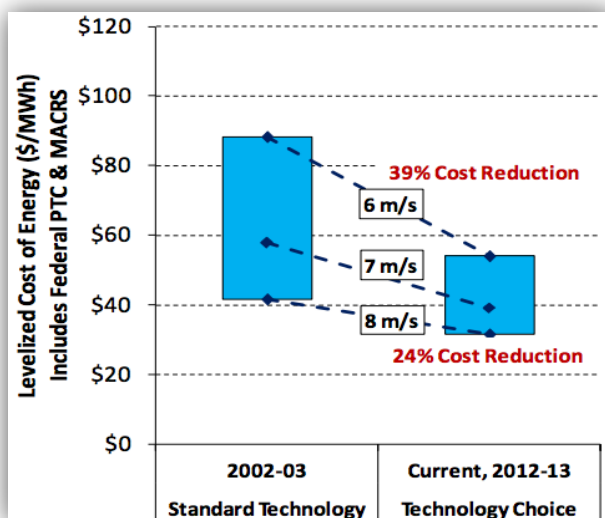
The South is a new frontier for the wind industry. Advanced wind turbine technology and reduced costs have expanded the resource potential and have made wind energy economically feasible in more places in the Southern United States.

Improved Turbines

The biggest changes in wind turbine technology over the past five years include taller turbines and longer blades. Just five years ago, wind turbines with a hub height of 80 meters (about 260 feet) and blade lengths of 40 meters (about 130 feet) were fairly standard. Taller turbines reach stronger, more consistent wind speeds. Hub heights of up to 140 meters (460 feet) are now available for wind farm developers. Longer blades are capable of capturing more wind, thus harnessing slower wind speeds. Blades are now available over 55 meters (180 feet) in length.

Reduced Costs

Wind energy is now one of the least expensive sources of new power generation in the country. Costs have declined by 39% over the past decade for wind speed areas averaging 6 meters per second. This reduced cost particularly applies to the Southeast, a region with typically lower wind speeds. Costs will continue to drop as technology improves.

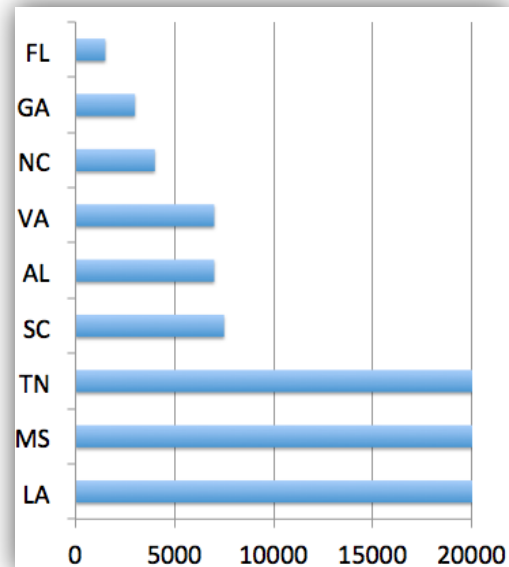


Source: National Renewable Energy Lab 2013

Expanded Potential

With improved turbines and reduced costs, wind farms now make economic sense in all states across the South. Using currently available wind turbine technology, over 134,000 megawatts (MW) of wind potential exists within the region - about half as much of the total installed electric utility capacity.

Megawatts of Onshore Wind Potential



Source: Adapted from National Renewable Energy Lab 2013

As can be seen in the chart above, all states in the South now contain substantial onshore wind energy resource potential. The megawatt figure for each state is based on wind energy resources that could achieve 40% annual capacity factors. Louisiana, Mississippi and Tennessee each contain more than 25,000 megawatts of wind energy potential. This expanded potential demonstrates a strong need for updated resource assessments that accurately reflect wind energy opportunities in the South.

Source

Joseph Owen Roberts (September 2013). Presentation, Land-Based Wind Potential Changes in the Southeastern US, National Renewable Energy Laboratory.

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